

## Business Roundtable Data Points

Nov. 2, 1994

- NASA has a tremendous role to play in bolstering U.S. economy/competitiveness. We are doing cutting-edge work in some markets with tremendous potential:
- Some experts estimate the global market for "green" technologies will reach \$300 billion by the year 2000.
- U.S. information service expected to continue to be among the fastest growing sectors of the economy. Total revenues expected to climb more than 12% in 1994 to \$136 billion.
- Cellular/personal communications market in U.S. expected to be nearly \$17 billion in 1996.
- Biotech sales in the U.S. expected to reach \$10 billion by 1998.
- U.S. satellite communications industry is a good example of successful NASA-industry cooperation. The U.S. now captures about 60% of the \$8 billion world market in satellite communications.

- Current world market for remote sensing is about \$800 million—expected to increase to \$8 billion a year or more in the next decade.
- Virtual reality—market expected to reach slightly more than \$430 million in 1995 (about 2% of the total multi-media industry). It's expected to top \$1 billion by 1997.

Examples of how we're doing versus the competition in aviation:

- Main competition today is from Europe.
- U.S. aviation industry is vital to economic health—sales of about \$100 billion a year. (We had 91% market share in 1969, about two-thirds today—mostly losses to Airbus)
- U.S. and Europe are about equal in new transport products. For example, 777 & A330/A340 aim at same market.
- We and the Europeans also are looking at the same next-generation products: new supersonic transport and New Large Aircraft (subsonic).
  - If U.S. industry builds new supersonic airliner, potential \$200 billion in sales, 140,000 new jobs.

- U.S. is far behind in transports carrying 100 passengers or fewer. Market dominated by Europeans.
  - MD-95 and Boeing 737-XXX address the upper end of market, but are still conceptual. Boeing also studying concepts for regional jet transports.
- U.S. is far behind in modern test facilities; American manufacturers go to European tunnels to obtain the test conditions they need.
  - The proposed new wind tunnels could help correct that situation.
- In general, the U.S. is slightly ahead in developing new technology; greater investment than Europe in HSCT technology, some propulsion and airframe technologies.
- Europeans are ahead in applying new technology to products, e.g., winglets, fly-by-wire systems, glass cockpits.

## Future Competition

- Next arena for competition will be in the "process technologies": manufacturing methods, reducing design cycle time and time-to-market.
  - Applying these technologies is the key to winning the battle.
  - U.S. may be able to convert some of these technologies that had high DoD activity to civilian use.
- New major competitor: some combination of Pacific Rim nations and Russia. Combined, they can do things that none of the parties could do separately.
  - Pacific Rim/Russia has a huge potential market, variety of investment capital, good design and production skills.

## NASA Overrun Comparison

- A look at six major NASA programs shows how we're doing: new shuttle turbopump, AXAF, Cassini, TDRS-F7, EOS, X-ray Timing Explorer.
- There has been no upward growth on these programs since FY92. By reducing scope and implementing cost savings, AXAF cost has

come down almost 60% and X-Ray Timing Explorer almost 33% since FY92.

### Cuts in Shuttle Ops Cost

- We recognize shuttle operations are too expensive, and we're doing something about it.
  - From FY91 to FY92, ops cost went up \$98.9 million
  - From FY92 to FY93, cost still rose, but much less: \$36.8 million
  - From FY93 to FY 94, NASA cut the cost of shuttle ops by \$537.4 million. We're now on the right track.
- At the same time, we're getting better at making the shuttle deliver on time.
  - In FY92, only one of 7 missions took off on the date we'd scheduled 3-4 months before; same story in FY93, one of 7.
  - In FY94, four of eight flight lifted off right on the predicted date. One other was delayed just 2 days due to engine inspections and weather.

# Business Round table

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Nov 2

① Pleased to accept invitation / as time passed I was excited to have this opportunity

~~Business~~

UK & US industry have ~~much in~~ goals in common

→ guarantee future sustained economic growth with an educated and inspired work force.

Gov't cannot perform task we can assist industry by appropriate regulatory ~~and~~ ~~and~~ and perform tasks they normally would not perform

Aircraft symbiotic relationship  
- facilities  
- tools  
- cooperative precompetitive technology

Come to gov't concerned high tech.  
agency UK & US with outstanding people  
needed in wrong direction with  
outdated policy & management approach.

# Needed Customer focus

American Taffreyer  
American Business  
American Universities

generate long term opportunity  
for future generations

- science & technology breakthroughs
- safety net for national security
- Inspiration for young & old  
(Shumaker Levy 2 1/2M  
PS 93)
- economic competitiveness

ecum  
into systs  
aircraft

Biomad  
Biotech  
Green Tech

Remote Sens

Program in transition

Kennedy

83-92

2 X

92-95

67 X

Better Agency  
 Customer Focus  
 Performance base not resource base  
 Accountability  
 Balanced Program  
 new starts in S/C (industry led)  
 ASCT  
 AST  
 NIH connect

## Appollo Bute Force

Miller 7+2  
 adaptive system  
 nanomolecular surgery  
 ultra reliability ultra low cost

**MENIS**

spacecraft on chip

**info systems**

solid state Graphics  
 virtual reality 0.5 → 1.0

**Aircraft**

ASCT  
 AST  
 General Atomics

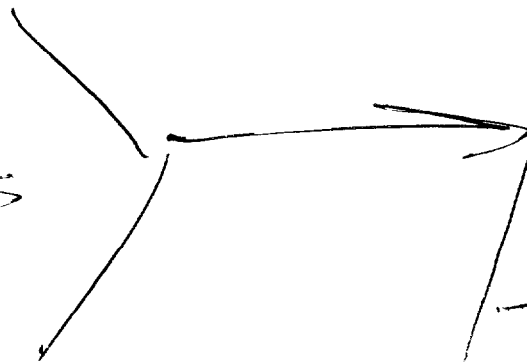


Biomed/Biotech

Route Success

Space Station  
AZUA

process  
mfg  
design tools  
facilities



cycle time
cost
performance

AXTF 60% ↓  
Shuttle ops